So You Wannabee A Woodworker

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Introduction To Woodworking

Woodworking has been described as a wonderful dichotomy, man pursuing perfection with ever better tools and techniques, yet it is nature's imperfect grains, curls, colors and characteristics that make each piece so stunning.

There are many facets of woodworking, one can spend very little on a few carving tools and with talent produce very spectacular work. Others will spend thousands of dollars on power tools and with talent produce work equally spectacular. Most of us find ourselves somewhere in between, enjoying ourselves, yet always wanting just one more tool.

Tools are only an end to the means, a way to find the beauty in the raw material nature has so kindly provided. Not everyone can see what is hidden, or visualize the potential of a rough slab of wood. The ones that see are the fortunate ones we have come to know and respect as craftsmen.

Whether it is an art or a craft is for the intellectuals to decide, to most of us it is enjoyable and that is the simple reason that we work with wood.

Woodworking is one of the few hobbies that can actually end up not costing a person anything. It is generally much less expensive to build an item than to purchase one of equal quality, often with a new tool factored in.

This is not a hobby for the impatient, the end result will only be as good as the care put into it. Many of the steps in a project are tedious and exacting, your completed project will show the world the attitude you had while building it.

All of the family can participate, children, once they are old enough to understand how to safely use tools, are great company in the shop. Often several generations and genders of a family can be working on a project together.

Will reading this book make you a woodworker, not likely, but it may do as it was intended and get you started on the way.

If you are interested in the hobby only patience and practice with a constant sprinkling of knowledge will make you a woodworker, visit your library and search the web for information. If you have the opportunity to take a class or two do not pass it by, learn what you can from friends and coworkers that have workshops.

For more detailed information check out Sawdust Making 101 on the web.

What Tools Do I Need?

Ask this question to a group of woodworkers and you will get many different answers. This is a hobby where there is seldom only one way or one tool to do a particular operation.

Then there is the difference between want and need, a lot of exceptional work has been done by craftsmen with very few tools, much firewood has been made by wood butchers using expensive of top of the line tools.

The tools you buy, whether they are minor purchases such as drill bits or major purchases such as a table saw are the foundation upon which you will be building upon. A quality tool will never replace talent but it will certainly make your time spent with it more enjoyable and less stressful.

Hand tools will always be used no matter how many power tools you have so shop for them carefully. Select quality tools, not necessarily the most expensive, how they feel to you is the most important consideration. All people are not created the same, some of us have smaller hands or longer fingers so how the handle is made on a tool will often decide if it is right for you.

Before you can do anything with a piece of wood you have to be able to dimension it to the size that is required for the project. To do this you will need a saw.

About Saws

The first saw that you buy should be a hand saw, start out with a good quality hand saw, around 20" long with 8 teeth per inch. Even when you have an assortment of power saws you will find that sometimes this is simply the best tool to use. Keep this saw sharp and take care of it.

The second saw to get would be a circular saw, there are many different brands and styles. The most common models have 7 1/4" diameter blades, this is adequate for most purposes, the saws with larger blades are heavier and not as easy for beginners to use. Cutting a straight line with these saws takes practice, even experienced users will employ a straight edge to run the saw against when a cut has to be dead on.

If you are building furniture you will probably find that you need a table saw. There are basically three categories of table saws.

The least expensive ones are the bench top models, they will have a direct drive motor, a small table, and a fair quality fence. If you will only be using one occasionally or need a portable saw they are now a good choice. There have been many recent improvements in these saws, some of the older models were not that great.

Your next choice would be a contractors style saw, this has a larger table, usually a belt drive with a more powerful motor and the fence may be upgraded to any style that you can afford.

At the top of the line are the cabinet style saws, these are built much more solidly than the contractor saws, they will have a larger motor and dust control is much easier to manage. They are heavy suckers so don't plan on moving them around the shop, they are usually situated in a convenient location and left there.

No matter which model you choose the saw will only cut as good as the blade that is on it. Often the difference between being happy with a saw or not is determined by the blade. Never skimp when buying a blade for two reasons, number one, you will get a better cut, number two, carbide teeth are less likely to break off and come flying at you.

All of these saws are made to cut in a straight line, if you wish to cut curves you will need either a jigsaw or a band saw.

The most economical way to cut curves is with a hand held jig saw, they will get the job done but are not as quick or accurate as a band saw.

Band saws are versatile tools, they will cut both curved and straight lines in very thick material. Another common use for them is resawing which is ripping a board on edge to get thinner boards the same width.

Using a saw will cut your boards to size, however they may not be perfectly straight due to the fact that your cut will be parallel to the edge that is run along the fence, if this edge was not straight then the cut will not be either.

About Planes

Traditionally boards were trued and smoothened with a hand plane and even now with all the power tools available there will be times when you will want to use one.

The first planes to get would be a smoothing plane, Stanley #3 and #4's fit into this category and a block plane.

The block plane has the blade set at a very low angle so it will trim across the grain. These planes are very handy to adjust poor fitting miters when making picture frames.

With power tools a board is squared by running one side and one face through a jointer, then it is run through a surface planer to make the board an even thickness. Finally it is ripped on a table saw with the trued edge against the fence to straighten the second edge.

Usually purchasing a jointer precedes the thickness planer, but if you wish to save on the cost of material by purchasing rough lumber then both will be necessary.

Sanding

Depending on the tools you have, after the lumber is cut to size the surface and the edges may not be smooth, you will now have to sand them. Sanding can be done by hand using blocks that are flat or contoured to fit the profile of the piece. There are basically four styles of power sanders, belt, disk, drum and sheet.

Do to the way that sandpaper works, sharp pieces of grit glued to a backing that scratch the fibers of the wood off, there will be marks left on the material from the grit. The challenge is to use a coarse enough grit to remove the fibers, yet leave it perfectly smooth. This is accomplished by only using as coarse of a grit as necessary to start with and working your way down with finer grits to remove the marks from the previous step.

Belt sanders come as smaller hand held units or larger bench mounted machines, this type of sander removes a lot of material in a hurry. They are not considered finishing sanders, and are used more to change the profile of the material.

Disk sanders are similar to belt sanders in that they are not usually considered finishing sanders with one exception, the random orbital sander. This has become the ultimate choice in finishing sanders, with its unique action it removes material quickly and does not leave marks in the process.

Large bench mounted disk sanders are extremely handy to fit or contour pieces during assembly.

Drum sanders come in two styles, spindle and thickness. Spindle sanders feature small cylinders of varying sizes mounted vertically that reciprocate up and down to eliminate the sanding marks. They are used to sand curved surfaces and may be hand held or bench mounted units.

Thickness sanders have larger diameter horizontal cylinders in wider widths and are equipped with a power feed. They are used to sand doors and panels to an even thickness.

Sheet sanders are still used for final finishing but are being replaced by the random orbit style sanders. One of the more common sheet sanders used is the detail sander, which uses a specially shaped sheet that comes to a point so that it will sand right into a corner.

The end result of whatever style sander you use will depend on the sandpaper that you use. Using too coarse of a grit will result in deep sanding marks in the wood, too fine will not cut enough of the wood to remove it quickly enough. Start with the finest grit that will do the job and work your way down from there. Let the machine do the work, don't force it down hoping it will cut faster.

Where you stop will depend if you are painting the item of using a clear finish, paint will adhere better to a slightly rougher surface, clear finishes will accentuate any sanding marks.

Grit size chart

Retail Definition	Industrial Definition	Uses
Super Fine	600 400	Polishing metals, ceramics, stone and plastic usually wet. Not generally used for wood.
Extra Fine	360 320	As Above.
Very Fine	280 240 220	Polishing finishes between coats, usually used wet.
Fine	180 150 120	Finishing bare wood.
Medium	100 80 60	First sanding for softwoods, shaping.
Coarse	50 40	Paint removal, rough sanding, shaping.
Very Coarse	36 30 24	Machine sanding bare floors, first cut.
Extra Coarse	20 16 12	Machine sanding floors to remove old coatings.

There are many specialized types of sandpaper, different materials are used in manufacturing for the grit and backing, select the type that is appropriate to the job at hand.

Many craftsmen do not use sandpaper at all preferring to use hand planes and scrapers. Like any other aspect of woodworking there are many ways of achieving that perfect finish.

Finishing your work

To protect the surface of the wood and to accentuate the beauty of the grain and characteristics of the wood a coating must be applied to it.

This can be something as simple a swiping an oily rag across it to multiple coats of varnish or lacquer.

Commonly used finishes belong to basically six groups, straight oils, oil and varnish blends, varnish, water based, shellac and lacquer.

Straight oils are suitable for cutting boards, butchers blocks and workbenches, they can be recoated as required. Decorative items such as sculptures and turnings that don't see any abuse can be finished to leave the wood natural looking with a matte finish. They are not suitable for articles that will be handled on a regular basis as they will collect dirt and grime.

Oil and Varnish blends give you the best of both worlds, the protection of varnish and the ease of application of straight oil. They are not suitable for high wear items such as a kitchen table, but are excellent for end tables, beds, night tables or mirrors.

Varnish is a straight oil with resin added such as polyurethane, Spar or Marine varnish has a higher oil component making it more flexible. Outdoor products have UV inhibitors added to prolong the life of your outdoor furniture.

Water based finishes are milky white in colour and turn clear as they dry, they have excellent wear and scuff resistance and are often used on hardwood floors. Because these finishes dry absolutely clear, rather than the amber tone of oil based products, they are very suitable for over top of light stains.

Natural shellac is amber in colour, adds warmth to projects, it is sold as flakes to be dissolved in alcohol or already prepared ready for use.

Natural lacquer is sap from the lacquer tree and is a totally natural liquid. It is semi-translucent light brown. Black lacquer is made by adding iron. Other colored lacquers such as red, yellow, green, and blue are made by mixing them with color additives. Natural lacquer ware is always "alive." The more it is used, the more beautiful and lustrous it will become.

Acquiring Tools

When to get a tool can be a very difficult question, most tools will go on sale, or you will find a good used one if you wait long enough. However is it always worth waiting for that to happen?

If you have a table to build and you don't have a jointer is it worth trying to find straight material that you can glue up or use a hand plane or a router to true up the edges of the boards? Obviously you will be getting a jointer sometime if you are serious about woodworking, so how much will you save by waiting, will it be enough to justify the wait?

Will what you save by making the table instead of buying one of the same quality cover the difference between the regular price and your estimate of what the sale price of the jointer will be?

The longer you wait the more improvements there will be in the design of the tool, unfortunately these improvements do not always come without a cost. Manufacturing costs seem to continually rise as well so each year may see a small increase in the price of the tool, so the longer you wait the cheaper you could have bought the tool.

Finding an outlet that sells used or surplus tools can be a gold mine if you know the value of the tools. Many major manufacturing companies will liquidate a lot of their tools when a contract is completed, I have bought tools that I thought I would only dream of for pennies on the dollar, often in like new condition.

Auction sales are a crap shoot, most auction companies have regularly scheduled sales at their premises where sellers bring items to sell. You may get a deal or a dud, if you know a bit about mechanics you may be able to evaluate the tool. Online auctions are risky as well, with them you don't even get to see the item, or know for sure that it is really the item in the picture.

On the other hand tool auctions at the premise of a company that has gone out of business are another story. Usually you will see the tools set up in the shop, therefore you can be pretty sure that they are in operating condition. Generally the tools to be avoided in this circumstance are the ones over in a corner covered with dust, they are likely not in use for a reason.

When buying a used tool through an ad in the paper no matter what the tool looks like try to figure out why it is being sold. If it has been replaced by a new tool that is a similar size or model be suspicious no matter how good the condition of the tool seems to be. Why would someone replace a perfectly good tool with one that does the same job.

Try to discern if a power tool has been taken apart recently, open up any guards or doors on the cabinet and look inside, if you see greasy fingerprints on any parts or bolts look like they have been removed ask why.

It is often tempting to by used electric motors, especially the more expensive larger ones. Be aware that simply seeing a motor plugged in and the shaft spinning does not mean the motor is fully functional. A motor will often run empty on the starter windings, unless you hear the main windings click in the motor will be useless.

Buy the best tool that you can afford as long as it will do the job. Some tools will perform many different functions, a router is a good example of this, therefore it will get a lot of use so the better the tool the longer it will last. Other tools may have one specialized function that the type of projects you work on seldom require, but you could use one occasionally. This is the tool you can save some money on, buy one of the good lower priced models, belt sanders are an example of this type of tool.

Working In A Small Space

If you are sharing your space with the family automobile or using a small area as a shop mobile tools will be a godsend. Flip top or modular style tool stands will also conserve valuable real estate. Try to design the stands so that tools used together will be on different bases, this will never entirely work out unfortunately.

Heavy power tools such as your table saw can be mounted on bases equipped with retractable castors that allow them to easily rolled out to the center of the shop, then lowered to solid footing.

Combine your tools to get maximum use of the space they occupy, add a router insert to your table saw extension wing. Many table saws come equipped with extension wings mounted on both sides, consider removing them and adding a slightly wider extension just on one side of the saw. Doing this will allow you to add a router insert, and also facilitate ripping wider stock.

Make portable out-feed tables, or use roller stands for tools that you feed long stock into. I use a top that sits on my Workmate for a table saw out-feed.

If you have a radial arm saw position it so that one end of the table faces a doorway, this way you can cut long boards by leaving the door open.
Hinging the extension tables so that they fold down out of the way when you are not using the saw will also gain some floor space.

Every woodworker's dream is to have a handcrafted European style workbench in his shop. If you have limited space such a bench is often not practical, you will likely find that a hardboard cover for your table saw top is a more efficient way to go.

Another invaluable accessory is a workmate, perhaps even two of them, they serve as bases for small power tools, have a built-in clamping system that works very well and best of all fold up out of the way when you don't need them.

It is much more important to be organized in a small area, there just isn't room to walk around piles of scrap wood. A clean shop is a safe shop, dispose of off-cuts as they are made, sweep up sawdust and shavings before they are tracked through the entire area. If everything has a place and is put there after using it you will have a more pleasant and relaxed attitude.

Safety in the workshop

No matter how cautious you are accidents still have the habit of rearing their ugly heads when you are not paying attention. If something doesn't feel right don't do it, stop and reconsider your options.

Never operate power tools when you are tired or are under the influence of alcohol or medication. If you are working on a large project that just has to be completed after a long shift at your day job start with the dangerous tasks while you are still fairly alert. Finish the session by doing simple safe things like hand sanding and putting on a coat of primer or sealer.

Before operating a tool you are not familiar with **read the manual,** this just may save you a lot of grief in the future. After becoming familiar with the machine on paper get to know it up close and in person. With the machine unplugged, or the circuit breaker shut off if it is hard wired, practice by making adjustments and doing dry runs.

Keep your work area clean and dust free. Dust is one of the most dangerous elements in your shop. Allergies may develop from a lifetime of exposure to wood dust that can make it difficult to even be in your shop.

If you already own a portable shop vacuum this may be adequate for a while, before purchasing one consider getting a proper dust collector. A one horsepower model will be about the same price as a large shop vacuum, it will move four times the air and not be as noisy.

Use a sanding table to collect the dust from hand held sanders, these can be purchased ready made or there are plans available to build one.

In addition to your dust collector you should also be running an ambient dust filter to clean the air in your shop. It is a good idea to run these while you are working and then for about a half hour after you have finished.

Use a dust mask when working in extremely dusty conditions even when you have a dust collector and air cleaner installed.

Basic Rules of Woodworking

1. To get new tools it is easier to beg forgiveness than to ask permission.

2. A new tool covered in sawdust looks like it has been around for a year.

3. Pay little at the check-out, cry a lot in the shop, pay a lot at the check-out, cry little in the shop.

4. Never admit that you can probably get all the honey-do's completed with the tools you have.

5. It is not how many mistakes you make, it is how well you cover them up.

6. Measure once, cut twice, measure twice cut once.

7. No matter how many times you cut it, it will always be too short.

8. Most machinery repairs can be done with two basic tools, if it is supposed to move and it doesn't use a hammer, if not supposed to move and it does use duct tape.

9. No matter what tools you have, there is always a newer, better tool that, if only you owned it, you'd be able to turn out work equal to a professional.

10. Pencils always appear just after you scratch the mark with a nail.

11. Some of the best innovations have been made from mishaps rather than planning.

12. Screwdrivers make lousy a chisel, and it is not okay to open paint cans with a chisel.